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ABSTRACT

To meet the anticipated educational needs for vocational agriculture teacher education during 1970-2000, vocational agriculture training programs were proposed for undergraduate, master's, specialist, and doctoral programs, and for noncredit inservice teacher education. The contribution of instructional materials, research, and placement programs are examined. Major recommendations include: (1) Offer all professional undergraduate education courses in off-campus locations and in cooperation with local school districts, (2) Use internship more often at the master's degree level, (3) Limit age of credits acceptable for the specialist degree, (4) Recognize a difference between Doctor of Philosophy and Doctor of Education in terms of kind of dissertation required, (5) Develop a comprehensive program of inservice teacher education, (6) Allocate sufficient staff time to meet the needs for instructional materials dealing with new needs and expanding program areas, (7) Assign staff research time to identify and plan programs in teacher education, and (8) Allocate state and federal funds for teacher education on a long-time basis. (SB)

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Foreword

Programs of education for the period 1970 to 2000 are at best difficult to visualize. The unrest on university campuses, and throughout society makes prediction and recommendation particularly hazardous. At the same time education of teachers, and their performance in the public schools of the nation, is a vital factor in alleviating the unrest and in bringing about needed reforms in the social, political and economic systems of the nation.

This paper outlines a recommended program of training teachers, supervisors, and others for vocational education in agriculture. It deals primarily with the preparation of teachers who are able to train students for occupational competence. It is recognized throughout the paper that, for occupational competence, one must have the characteristics of good citizenship, as well as the skills and abilities needed for performance of needed tasks. Vocational education in agriculture is only one aspect of the total educational system, and vocational agricultural programs must be geared into the total system. At the same time, the recommendations are based on the fact that programs have unique characteristics for which teachers must be prepared, and that individuals, both teachers and students, have desirable characteristics which need to be recognized and developed.

In contrast, many of the practices of the past 20-30 years have tended to ignore the unique characteristics of programs and of the people involved in them. This has resulted in attempts on the part of university administrators to "put all students through the same mold" in terms of general education courses and in terms of many professional education and student teaching programs. It has given rise to some of the labels students have placed on education courses, viz.: Mickey Mouse courses, irrelevant courses, etc.

The recommendations in the paper are intended to chart a route from the present situation to a goal that should be reached in the 20-30 years under consideration. The evolutionary process may lag in some respects, and in some respects it may be speeded up. In any case we can be sure that change will occur. The direction of the change is the crucial issue.

Dr. Guy Timmons, professor of agricultural education at Michigan State University, first suggested to the author that he undertake the project during the terminal leave year. It is flattering, to one who has been in direct contact with agricultural education continuously for more than fifty years, to have a colleague suggest a look to the future, it is also a challenge. One must not be bogged down in the past and fail to see a light of progress for the future.

To assist in avoiding an over emphasis on the past and to suggest for the future, the author has submitted a copy of the manuscript to the following individuals. Each has given valuable suggestions and criticisms.

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I. Introduction

A. The President's Panel

For a number of years prior to 1961 there had been much discussion and controversy regarding the effectiveness of the public schools in providing education for occupational competency. Many people felt that traditional vocational education programs, particularly those supported by the National Vocational Education Acts were inadequate for training for modern farming, agriculture, business and industry. The programs had not kept pace with the changing technology in the total field of agriculture.

To set in motion a program to correct this situation, President John F. Kennedy said, in his message to Congress on February 20, 1961:

....The National Vocational Education Acts first enacted by Congress in 1917 and subsequently amended, have provided a program of training for industry, agriculture, and other occupational areas. The basic purpose of our vocational education effort is sound and sufficiently broad to provide a basis for meeting future needs. However, the technological changes which have occurred in all occupations call for a review and re-evaluation of these acts, with a view toward their modernization.....

To that end, I am requesting the Secretary of Health, Education and Welfare to convene an advisory body drawn from the education profession, labor, industry, and agriculture, as well as lay public, together with representatives from the Departments of Agriculture, and Labor, to be charged with the responsibility of reviewing and evaluating the current National Vocational Education Acts, and making recommendations for improving and redirecting the program....*

When the panel issued its report in 1963 its recommendations reflected the need for changes in the vocational education programs in terms of, not only increasing financial support by the Federal government, but also in terms of the nature of programs.

* Quoted in, U. S. Panel of Consultants on Vocational Education. Education for a Changing World of Work. OE 80026. Washington, D. C.: Government Printing Office, 1963. p. iii.

Responding to the recommendations of the panel and the demands of society, Congress passed the Vocational Education Act of 1963 and subsequently has passed additional legislation affecting vocational education programs in the nation. The provisions of these acts which relate to the program of vocational agricultural education include:

1. The expansion of the scope of training to all occupations "where a knowledge of agriculture is needed."
2. Integration of content to better prepare students for their careers. In effect this provision would bring about many "across the board" learning activities, and would require teachers with an understanding of the many facets of vocational competence.
3. Technician level training. This encourages training being offered in post-high school situations.
4. Professional preparation of teachers.
5. Preparation of instructional materials.
6. Programs for the disadvantaged.

B. Legislation, A response to Social Pressure

The recent legislation, reflecting the demands of society, has established the need for new kinds of teachers of vocational agriculture. No longer can teachers confine their instructional programs to "training for farming." They must also provide training to prepare students for careers in many areas of agricultural business and industry, and they must be able to help each student reach his specific occupational objective even though the class is made up of students with diverse objectives.

C. Purpose of the Paper

It is the purpose of this paper to outline a program of teacher education in vocational agriculture which will meet the anticipated needs in the years 1970-2000. Obviously such a program will need to be adaptable in terms of:

1. changing agricultural technology
2. changing professional techniques and standards
3. changing patterns as to the scope of the program

The paper will be limited to teacher preparation in vocational agriculture.

It is recognized that the teachers will be responsible for the vocational preparation of many students in areas not traditionally recognized as agriculture. For example, training for sales and service work in farm power and equipment, ornamental horticulture, forestry and many other areas will require abilities in communication, salesmanship, human relations, science and others. These abilities may appropriately be taught in non-agricultural classes provided that students are able to make adequate application to their respective vocational areas. In other words, teachers need to work together to shape curriculum which will meet the needs of a wide variety of students in a class. The teacher of agriculture will need to work with the teachers of communications, salesmanship, human relations, science and others to make sure that all aspects of the instructional program are adequately carried out. To accomplish this kind of integration, teachers will need to be trained to coordinate their efforts to a greater degree than is currently practiced.

Included in the paper will be:

1. The introduction--a statement of the problem.
2. Responsibility for training teachers of vocational agriculture.
3. The program of agricultural education.
4. Recruiting for teaching.
5. The training program.
6. Instructional materials.
7. Research program.
8. Placement and follow-up.
9. Contributions to the national program.
10. Allocation of State and Federal Teacher Education Funds.
11. Joint training Program with Cooperative Extension Service.
12. Summary.

While it is essential for teacher education institutions to prepare teachers so that they may qualify for certificates to teach under the laws of the state, it is equally important that individuals be able to demonstrate competencies required of teachers. As a long-time

goal the demonstration of competencies should be substituted for the current practice of requiring specified credit hours in specific areas as the basis for state certification. (See pages 15-18).

II. Responsibility for Training Teachers of Vocational Agriculture

In the years following the passage of the Smith-Hughes Act in 1917* "training for farming" was recognized as the primary purpose of the section of the act dealing with agriculture. This interpretation persisted into the 1950's when it became clear that many of the functions previously performed on the farm had been transferred to agricultural business located in the cities. For example, farmers no longer raise horses for farm power-- instead they buy tractors manufactured in urban communities. They no longer raise grain and forage for draft horses--instead they purchase tractor fuel which is delivered to the farm by tank truck.

It soon became clear that persons performing these functions of sales and service need a knowledge and understanding of agriculture as do the persons operating or working on the farm.**

*Public Act 347-64th Congress -1917.

**A significant number of studies have been made during the 1960's to determine competencies needed by employees in various kinds of agricultural business. The following specific items dealing with needed competencies are listed in the bibliography.

1. Vocational competencies for the Performance of Essential Activities for the Sales Function by Sales Personnel in the Feed Industry, and the Loci at which the competencies could be taught.
2. Approach to Curriculum for Vocational Education.
3. The Importance of Activities Performed in Functions of the Farm Machinery Industry as a Basis for Training Programs.
4. Vocational Competencies Needed for Employment in the Feed Industry.
5. Competencies in Agriculture Needed by Males Employed in Retail Fertilizer Distribution.
6. Competencies in Agriculture Needed by Males Employed in Country Elevator Grain Marketing.
7. Competencies in Agriculture Needed by Males Employed in Retail Farm Machinery Distribution.
8. Competencies in Agriculture Needed by Males Employed in Wholesale Farm Machinery Distribution.
9. Competencies in Agriculture Needed by Males Employed in Retail Feed Distribution.

The increase in number of persons performing these functions of sales and service, highlighted the need for competencies in agriculture. The persons contacting farmers for purposes of selling and/or providing services need a knowledge and understanding of agriculture as well as the persons operating or working on the farm. In addition, the changes in size of farms, improvements in transportation and marketing procedures, the increased specialization in the farming operations, and others have changed the kinds of competencies needed by farmers as well as those who deal directly with farmers.

As these changes have occurred in agricultural technology, it has become necessary to develop a program of teacher education, to provide teachers competent in terms of agricultural technology and in terms of appropriate professional standards and practices.

Training teachers of vocational agriculture has been recognized as a responsibility of Land Grant Institutions since 1907 when the Nelson Amendment provided appropriations for the "more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts....

Provided, that said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and mechanic arts.*

The Nelson Amendment thus linked the training of instructors in agriculture with the colleges of agriculture in the Land Grant System. While subsequent legislation has placed the administration of teacher training in vocational agriculture in a different agency of government, the relationship of vocational agriculture teachers as an arm of the colleges of agriculture in the respective states has persisted through the years.

*Public Law 34:1281, U. S. Statues at Large. Nelson Amendment of the Land Grant Act of 1890. March 4, 1907

As indicated by President Kennedy's statement (see page 6) the changes in the occupational structure in American society resulted in the need for legislation supporting vocational education. As a result the Congress of 1963 and 1968 authorized the expansion of vocational education programs. This more recent legislation has broadened the areas for which teachers of vocational agriculture must be trained to prepare students for careers in such fields as:*

Farming	Natural Resources
Irrigation	Rural Recreation
Forestry	Feed
Farm Buildings	Fertilizers
Landscape	Seed
Nursery	Petroleum for Agricultural Uses
Horticulture	Agricultural Farm and Business Management
Agricultural Chemicals	
Farm Power and equipment	Others
Farm (rural) electricity	
Food Processing	

The responsibility for training teachers of vocational agriculture is delegated by the Federal government to the respective States. In the states the appropriate State Board delegates the teacher training function to specific institutions. Practices vary among the states. In some states the responsibility is delegated to the Land Grant University. In others it is delegated not only to the Land Grant University but also to one or more of the state supported regional or state colleges and universities where adequate staff and facilities for needed training are available.

In approximately one-half of the institutions delegated to prepare teachers of vocational agriculture, the programs are administered in the College of Education and in approximately one-half, the programs are administered in the College of Agriculture.

This paper is based on the assumption that at Michigan State University training teachers of vocational agriculture will continue to be a joint responsibility of the Colleges of Agriculture and Education with programs approved by the all university committee on teacher education, and with the allocation of special state and federal vocational teacher education funds administered in the College of Education.

*See Vocational Education and Occupations. Bul. OE80061: Washington, D. C.: Superintendent of Documents, 1969 for a more complete list of agricultural occupations for which training may be given.

III. The Program of Agricultural Education

A. Teaching Agriculture, A Function of the Public Schools

Teaching agriculture has been recognized as a function of the public schools in Michigan and throughout the nation for many years. Agriculture was taught in approximately 300 rural schools in Michigan by 1906, and the 1908-1909 report of the Superintendent of Public Instruction shows approximately 1000 rural schools in the state giving some agricultural instruction. In the same year North Adams was reported as the first high school in the state teaching a full course of agricultural education.* These programs represent the beginnings of an effort on the part of public schools to accomplish the objective of "occupational competence" which is included in many statements as one of the aims of public education.**

As indicated above the program of vocational agriculture has expanded in terms of the variety of occupations for which training in agriculture is needed. Recent federal legislation has also expanded the responsibility in terms of people to be served. In addition to offering education in agriculture to high school boys, out-of-school youth and adults who are farming or who are seeking to become established in farming, the recent recommendations in The Bridge Between Man and His Work are interpreted to include responsibility for training:

- (a) in agriculture at the high school and/or the post high-school level (commonly in the high school, community college, area vocational schools and technical institutes).

* Fern, George H. and Harriet H. Carr. History of vocational agricultural education in Michigan. An unpublished manuscript, prepared by authority of Eugene B. Elliott, Superintendent of Public Instruction. Copy in the State Library, Lansing, Michigan.

** See

- (1) The Purposes of Education in American Democracy. pp.91-106.
- (2) Educational Policies Commission. The Central Purpose of American Education, pp. 1-2
- (3) Imperatives in Education, pp. 20-41

- (b) in junior high schools, particularly in relation to career information and choice.
- (c) in the elementary schools, in terms of developing better understanding of the "world of work."
- (d) in adult classes for persons engaged in farming and in agricultural businesses, to assist them in adjusting to changing technology, new methods, new products and new needs of people.
- (e) at all levels in the economically depressed areas, both in rural and urban situations.

In addition the Rural Manpower programs, developed cooperatively by State and Federal Departments of Labor and Education and the Cooperative Extension Service offer training and retraining programs for adults who are "unemployed or underemployed." In cases where these programs deal with farming or agricultural business and industry, trained teachers of agriculture are needed.

B. People to be served by the instructional program in vocational agriculture

The implementation of this program requires teachers who can provide training to develop workers at all levels of competence from the lowest forms of labor required, to the technical and professional levels, and with a wide variety of skills and abilities among the workers. Such workers are needed for producing, processing, distributing, and utilizing products of the agricultural industry.

The teacher education program in vocational agriculture for the 1970 through 2000 period should include provision for training those who are preparing to teach in the public school, technical institute and community college, and also other educational personnel, such as cooperative extension workers, personnel assigned by universities and/or the U. S. government to educational work in agriculture (both farming and agricultural business and industry) in foreign countries.

C. Need for the Program of Vocational Agriculture

1. The World Food Situation

Authorities such as William and Paul Paddock and George Borgstrom are pessimistic about the possibility of averting famine throughout the world. They point to the rapidly increasing population and the lagging food production and point out that we cannot expand food production rapidly enough to avert famine.

Other authorities, on the other hand, point to the recent breakthroughs in improved varieties, improved cultural practices and other developments in food production. They hold out the hope that, by implementing the new discoveries, we may be able to avert the famine faced by many areas of the world. For example see the report by S.H. Wittwer, listed in the bibliography.

When the technical, social and political problems associated with food production, distribution and processing are considered, it is evident that the Land Grant University system must devote much energy and resources to provide an adequate supply of well trained teachers of agriculture, capable of carrying the message of food not only in the United States, but throughout the world.

2. The National Agricultural Situation

The national agricultural situation and its implications for vocational education represents one of the important segments of the industrial-economic complex for which training is needed.

As technology has increased, the need for more sophisticated training of workers has become more acute. Many groups, representing segments of agricultural business and industry, have emphasized the need for more and better trained employees. Evidence of the need can be obtained through reports of associations of agricultural business and industry, or farmers, such as those of the Grain and Feed Dealers National Association, the National Nurserymen's Association, the National and State Farm Equipment Dealers Association, the American Farm Bureau Federation and others.

Studies by vocational educators also reveal the need for trained people for farming and for agricultural business or business in which knowledge of agriculture is needed. These include persons who may be trained in their high school program for entry jobs as well as those trained at the technician level at the time of graduation from community colleges and technical institutes, and those who are trained at the professional level at colleges and universities.

3. Need for Trained Teachers for the Program

All these expressions and evidences of need emphasize the necessity for a teacher education program geared to train teachers capable of providing the education and training needed by persons for successful and worthwhile careers in agriculture.

It is clear that teachers of vocational agriculture for the future need different training than is being provided for teachers now being trained. New technology has brought about the need for teachers to acquire new understanding and skill. New developments in farming and agricultural business, and new teaching methods and materials will require constant modification of teacher education programs in terms of technical subject matter content and teaching techniques. It is equally apparent that new developments in our knowledge of learning, of teaching methods and of other aspects of professional understandings and abilities will require constant modification of the program for the professional education of teachers. In this connection, it is well to keep in mind that the competency of the teacher is more important than the number of courses or credit hours accumulated on a transcript or the amount of occupational experience the teacher has had. A long-time aim of teacher educators should be to move away from present methods of certifying teachers and move toward:

1. a carefully developed list of competencies needed by the teacher.*
2. a carefully developed set of criteria for measuring the competence of the teacher or prospective teacher in terms of his performance.
3. certification on the basis of demonstrated performance and on recommendation of the training institution.

In this connection Conant states:

"...Therefore I propose that for certification purposes the states focus their attention on this aspect (practice teaching) of teacher education. To be sure, practice teaching is not the only important part of teacher education, so I also recommend that the state should demand of the college president a statement that a particular candidate has completed what his entire faculty-- academic and professional--considers a well designed teacher preparation program. But I have encountered no responsible group denying that practice teaching is an important part of a good program, though there is a great deal of difference of opinion about every other component. Moreover, though no one could tell by a student's achievement in a chemistry course whether he could work well with adolescents in

* A beginning attempt in this direction is in : A Teaching Profile and Handbook for Supervising Teachers. See bibliography.

a secondary school classroom, anyone who watched him teach a high school class in chemistry might well discover inadequacies either in his knowledge of chemistry or in his ability to teach it to adolescents. Of all the components of a teacher education, the situation in which the candidate for certification actually teaches--the practice teaching situation provides the best chance of assessing his mastery of the knowledge and skill required of an effective teacher. For this reason the course in practice teaching, and the closely related course in methods of teaching that subject--a course which loses much of its value if not tied closely to practice teaching-- are all that I believe the state need require. The state should insist that the colleges and the public school systems responsible for practice teaching provide conditions under which a careful appraisal is possible. This means that the practice teaching situations must be well conducted and well supervised by the kind of public school and collegiate personnel who are capable of judging a potential teacher's total performance.*

Such a program of certification will require modification of state certification codes as well as the development of the criteria needed for adequate measurement of competency. For example, the teacher certification code would no longer require a specified number of credits in professional education courses, or in technical subject matter courses. If a student could demonstrate teaching competency in an area, he would be qualified for a teacher's certificate, so far as that area is concerned. It should be emphasized that teaching competency involves not only ability to use acceptable teaching techniques, but also it requires adequate technical knowledge and ability. This basis for teacher certification would not necessarily affect qualification for a degree, but it would enable those who are able to demonstrate competencies without completing courses, to broaden their education by enrolling for other courses to apply toward a degree.

* Conant, James B. The Certification of Teachers: The Restricted State Approved Program Approach. (In Freedom With Responsibility in Teacher Education.) 17th Yearbook of the American Association of Colleges for Teacher Education. 1201 16th St., N. W. Washington, D. C. 20036: The Association, Page 16.

The lag in changing state codes, to meet the need for application of the idea of certification on the basis of competencies, will likely not be accomplished within the 20-30 years we are considering in this paper. Consequently, the criteria for the degree and the certification described in this paper are in terms of credit hours. As rapidly as the competency idea is adopted, the qualification for certification should be translated to the competency basis.

IV. Recruiting for Teaching

The problem of recruiting, not only for teaching vocational agriculture, but also for many other fields of agriculture where trained personnel are vitally needed has been complicated by the failure to identify the specific occupations in farming and agricultural business where a knowledge of agriculture is needed.

In this section we will briefly outline a program of recruiting for teaching vocational agriculture. We will consider: A. Who should be recruited; B. Program for recruiting; C. Responsibilities and assignments for recruiting.

A. Who Should Be Recruited

1. Recruiting High School and Community College Graduates for University Training in the Vocational Agriculture Teacher Education Program.

Recruiting high school and community college graduates for university training involves providing complete and accurate information as to the need for occupational experience, which may be acquired prior to enrolling in the university, opportunities in the field, numbers needed and the normal kinds of information concerning salaries, promotions, working conditions, and the like. Experience has shown that teachers and counselors are not well informed of the acute shortage of trained personnel in the agricultural education field and that many more students would be available for the teacher education program if they could be made aware of the opportunities.

2. Recruiting Persons for Teaching--from Agricultural Business and Industry and from Farming.

Teacher educators in vocational agriculture have depended quite largely on preparing an adequate supply of teachers through the regular baccalaureate degree program. The major exception has been in the use of "special teachers" for some adult classes in vocational agriculture and for below college level veterans training programs following World War II.

However, with the expansion of the program of vocational agriculture to the community college and vocational-technical school level, the possibility of recruiting teachers from agricultural business and industry and from specialists in certain aspects of agriculture, is greatly increased.

Recruiting of these persons for teaching involves determining the opportunities and needs for teachers, and furnishing the information through appropriate channels to prospective teachers, school administrators and counselors. As these people are recruited for teaching, the teacher education institution must be ready and able to offer appropriate training to complete the qualification of the recruits for teaching.

3. Standards for Those to be Recruited

Prospective students for teacher education need to be made aware of the requirements for admission to the program in terms of scholarship and the requirements for certification.

While scholarship standards for admission to teacher education may not actually help to identify potentially good teachers, never-the-less high school and community college students must be informed of institutional requirements for admission. This should be incorporated as part of the recruitment program. Teacher educators and others engaged in the recruitment process need to be sure that accurate and complete information is furnished to students concerning these requirements.

At the same time teacher educators, including those in agricultural education should immediately undertake studies to identify potentially outstanding teachers on bases other than traditional academic scholarship.

One of the fundamental principles of a vocational program is that the teacher is experienced in the occupation for which he is providing training. Some of this experience may be obtained by students after high school graduation and some of it may be obtained during the years the student is in high school or in the community college. Some students may gain needed experience, before or during the time they are enrolled in the university. Experience in farming, and/or some other type of agricultural business, may also help students to decide if they wish to become professional educators in the agricultural field. In this respect the occupational experience program is a distinct aspect of the recruitment program.

B. A Program for Recruiting Prospective Teachers

1. Sources of Recruits

The program for recruiting prospective teachers will require contacts

by staff members in agricultural education with schools (both high schools and community colleges) where counselors, teachers and administrators as well as students can be made aware of the needs and opportunities for teachers. Recruiting prospective teachers from the labor force in agricultural business and industry may be accomplished through the respective trade associations and through reports and articles in appropriate trade journals.

Examples include such activities as presentation of Agricultural Careers opportunities such as provided by specialists in agriculture education at Farmers Week in 1969; exhibits at youth conventions such as those presented at the National FFA Convention in 1969 by forty-two associations representing agriculture, and many articles in trade journals in the agricultural field.

In many cases competent employees of an agricultural business can be made available to teach, either on a full-time or a part-time basis. In some cases appropriate employees are assigned by their company management, to teach in a public school program for a portion of their time. While the arrangement needs to be carefully controlled in the public interest, the procedure offers excellent opportunity to secure well qualified talent for specific courses or parts of courses.

Recruitment of such personnel for teaching involves informing agricultural business managers and their employees of the needs and the opportunities for employment as a teacher and particularly of the opportunity to be of service to the industry and to the people they would help to train.

2. Information as to Requirements for Entry and Advancement in the Teaching Profession.

Not only must the recruitment program provide information as to employment opportunities in teaching, but also the program must provide information regarding requirements for entry and advancement in the teaching profession.

In the case of prospective teachers of vocational agriculture, information should be provided as to the levels at which teachers may be employed. For example will they be employed as teachers at the junior high school, senior high school, community college or other level? The opportunities in differentiated staffing situations, to qualify for certain levels of instructional work should also be included. (See pages 42-45)

The opportunities for advancement in terms of position and in terms of salary should be provided through experience

and through additional professional work at the university should be considered. In the case of individuals recruited from business and industry, the opportunities for continuing part-time employment will be considered.

Prospective teachers should be fully informed as to the need for continued training following initial certification. In this connection, much of the incentive for additional training is in the salary increases that accompany additional course credits. However, we believe that candidates for teaching positions must be made aware of the necessity for keeping up-to-date both technically and professionally if they continue to be effective teachers. In some cases this up-grading might mean employment in a business for experience. In other cases it might mean additional courses in the university, and in other cases it might mean a well organized program of independent study or an internship.

C. Staff Responsibilities and Assignments

Furnishing adequate information for use as a base for recruiting will require extensive and continuing research on the part of the teacher education staff in the training institution.

Presentation of the information must be provided through articles and reports in professional journals, trade journals, trade association releases and other media. Also presentation will be made through such media as television and radio, displays at conferences (professional education conferences, youth conferences and trade conferences), talks at appropriate gatherings and the like.

It should be noted that some aspects of the recruiting function of the teacher education program may be classified as one of the research activities appropriate to vocational teacher education including agricultural education. It should also be noted that the information gathered under the recruiting program is essential as a basis for instructional materials needed for teaching students at the junior high school, senior high school and even post-high school levels regarding occupational opportunities. This is recognized as an essential part of vocational training under the vocational education acts of 1963* and 1968**.

Also involved in the vocational agricultural staff responsibilities for recruiting is the need for a cooperative working relationship with those who are training counselors and with counselors in local schools.

* Public Law 88-210, 88th Congress, 1963

**Public Law 90-576, 90th Congress, 1968

An awareness of the need for vocational agriculture teachers in the public schools and community colleges, and of the characteristics of instructors is required. The staff in agricultural education must be in position to provide needed information based on adequate research and in terms of the program of agricultural education to be developed.

1. Responsibilities of Agricultural Business for Recruiting

As indicated above, persons in agricultural business and industry including those in farming have a responsibility for recruiting persons for teaching. These responsibilities may be discharged through the various trade associations as well as through individual businesses. Information must be continuously provided as to the need for teachers, the abilities and understandings needed by the teachers and the career opportunities available for agricultural teaching.

2. Responsibility of Staff to College of Agriculture and Others

Vocational funds for training prospective teachers of vocational agriculture at the undergraduate level will probably continue to be administered in the College of Education and with the professional preparation (education courses including student teaching) being offered by the College of Education. This places a responsibility on the staff in agricultural education to coordinate recruiting activities with those of the Colleges of Agriculture and Education. The program of recruiting should be developed in cooperation with the appropriate staff members in each of the colleges.

3. Coordination of Recruitment Activities with Others in the University

Coordination of the vocational agricultural education staff activities with the college wide programs is essential. At the same time, it must be recognized that the university wide and the college wide recruitment programs need to be supplemented for a number of specialized areas such as vocational agriculture, in order to meet the need for teachers in these areas.

4. Prospective Post-Secondary Personnel

Post-secondary teachers are currently not required to have teaching certificates issued by the state. Administrators

normally expect them to possess a Master's Degree.* However, administrators of community colleges where vocational programs are offered are recognizing the need for professional as well as technical training of teachers. ** It is a responsibility of teacher education in vocational agriculture to offer needed training in this area and to direct the students in selecting appropriate programs of study. The program may be somewhat different from that offered the prospective high school teacher of vocational agriculture, since minimum preparation will require a Master's Degree as well as needed professional training in education.

5. Junior High School Teachers

Junior high school students are at an age where they are interested in careers and where they need career information. For the most part they will not want to finalize their choice of a career but will want to make tentative choices of broad career areas. The teacher of vocational agriculture must be able to assist teachers and counselors in helping their students in their consideration of careers in the total agricultural field, as well as to work directly with the students on appropriate occasions.

6. Elementary Teachers

Recent proposed legislation has suggested that children in the elementary grades develop concepts of "the world of work" as a basis, later on, for choosing a career. Included in these proposals is the suggestion that teachers of vocational agriculture should assist in acquainting pupils with the agricultural aspects of the world of work, as part of a program to give elementary pupils a better understanding of the world of work. Whether vocational teachers work with elementary teachers to accomplish this purpose, or whether it is to be accomplished by other means, the teacher of vocational agriculture will need to be trained to the extent necessary to cooperate in the activity.

*For use of federal vocational funds, it is necessary to approve (certify) vocational instructors. The State Board of Education may issue Special one-year certificates for this purpose.

**Conference on Technical Programs in Agriculture. Held at Albert Pick Motel, East Lansing, Michigan, January 30, 1969. Unpublished mimeo, 1 p. "Summary of Outcomes." Lansing, Michigan: Michigan Department of Education.

7. The Manpower Program

The Manpower Training Program in rural areas needs teachers of vocational agriculture who are able to train unemployed or underemployed adults. The purpose of this program is to make these people employable through the development of needed attitudes, knowledge and appropriate skills for a specific job, or cluster of jobs.

It is evident that teachers of agriculture in the future will be called upon for many different kinds of teaching activities. No one individual will be equally skilled in all aspects of the program. However, every teacher of vocational agriculture will need to be competent in some of these areas. In addition, as differentiated staffing develops in the vocational agricultural program, it is likely that the additional training needed for reaching higher levels in the differentiated teaching program will help teachers develop competence in new aspects of the program.

In the next section we will consider the programs for training teachers of vocational agriculture. These will be considered under the headings of (1) The undergraduate teacher education programs, (2) The Masters program, (3) The Specialist program and (4) The Doctoral program.

V. The Teacher Education Program

A. The Undergraduate Teacher Education Program

1. Clientele to be Served

a. Prospective High School Teachers

Prospective high school teachers in vocational agriculture represent one group to be trained in the undergraduate program. Upon completion of the program the individual should have a B. S. degree and be certified by the state as a teacher of vocational agriculture.* As indicated on page 33 the teacher may have completed a "general agriculture" major or a major in a specific area of agriculture.

b. Prospective Community College Teachers

Many community college teachers in vocational agriculture will be drawn from the ranks of high school teachers who have acquired a Master's Degree and who prefer to teach at the community college level. Others will have the goal of going directly into community college teaching. At the undergraduate level it is recommended that the training program for these individuals be the same as for those who plan to become high school teachers of vocational agriculture.

c. Prospective Teachers of Adults

Many teachers of vocational agriculture include teaching adults as part of the load. Relatively few devote full time to this activity. As the program of agricultural education expands into fields of agricultural business and industry, forestry, rural recreation and others and as the Rural Manpower Training Program expands, there will be increasing need for teachers of adults.

As a joint training program is developed with the Cooperative Extension Service, it will be advisable to offer more of the student teaching program at the adult level. In some cases, particularly for those who plan careers in the Cooperative Extension Service,

*State Board of Education Rules Governing the Certification of Michigan Teachers. Lansing, Michigan: Department of Education Bureau of Higher Education. July 1967. pp.2-3.

or those who plan to teach exclusively at the adult level, the student teaching may be offered entirely in adult education programs. (See item e, below.)

d. Elementary and Junior High School Teachers

Elementary and junior high school teachers need to be prepared to help their students develop an understanding of the world of work and begin to make tentative choices of careers. To assist these teachers and/or prospective teachers with these understandings and abilities, members of the staff in agricultural education should be available to work with elementary and secondary teacher educators in the development, use and presentation of materials to these non-vocational prospective teachers.

e. Prospective Extension Personnel

Prospective extension personnel can profit from training similar to the professional education training offered to vocational teacher education students. A program for offering such training for prospective extension personnel should be developed with the Cooperative Extension Service and offered jointly by agricultural education and cooperative extension personnel. While such a program does not presently exist in Michigan (academic year 1969-1970) it does represent a program that should be developed.

2. Program Content

In his book, A Design for Teacher Education, Masoner states,

This professional program... must grow in an atmosphere of education, research and service, with a true climate of learning. It must be a program in which there is an integration of liberal and professional studies through a five-year curriculum with significant opportunities for integration of theory and practice through observation, participation, and practice culminating in a true internship experience.*

* Masoner, Paul. A Design for Teacher Education. Pittsburgh: University Press. 1963. 42 pp. (Horace Mann Lecture, 1963) pp. 40-41

While the teacher education program at Michigan State University has not achieved the standards suggested by Masoner, some progress has been made, and it is hoped that the progress has been in a direction to help achieve in terms of Masoner's suggestions.

a. General Education

General education credits and courses are commonly defined as "those courses needed by everyone with a university degree which are necessary to participate in the society as a well trained individual." However, there are differences of opinion as to what constitutes a liberal education. Conant states: *

In any discussion about the idea of a liberally educated man, one encounters differences of opinion as to what this expression means; and there is a great variety of programs reflecting these diverse opinions. A cynic might be tempted to define a liberal education as a four year exposure to an experience prescribed by a group of professors, each of whom has prime allegiance to his own academic discipline. The programs in many institutions seem to have been developed not by careful consideration of a group but by a process called academic logrolling.... In any event, one finds a complete lack of agreement on what constitutes a satisfactory general education program for future teacher....

When one examines the courses in education, one finds almost as much confusion as exists in general education. Here the cynic might well say that the professors are jealous of their share of the student's time but are ill-prepared to use it well.

Academic professors and professors of education are in complete agreement only on one point: that practice teaching, if well conducted, is important. Aside from practice teaching and the accompanying methods course, there is little agreement among professors of education on the nature of the corpus of knowledge they are expecting to transmit to the future teacher.

* * *

* Conant, James B. The Education of American Teachers. New York: McGraw Hill Book Co., 1963. pp. 209-210.

Conant goes on to recommend to a chief state school officer, a State Board of Education or a Legislature that:

For certification purposes the state should require only (a) that a candidate hold a baccalaureate degree from a legitimate college or university; (b) that he submit evidence of having successfully performed as a student teacher under the direction of college and public school personnel in whom the State Department has confidence, and in a practice-teaching situation of which the State Department approves; and (c) that he hold a specifically endorsed certificate from a college or university which, in issuing the document, attests that the institution as a whole considers the person adequately prepared to teach in a designated field or grade level.

The courses indicated on page 33 may be considered for this purpose. However, in making this suggestion it is recognized that much of the teaching in these courses at Michigan State University has been severely criticized.

While the basic idea of these courses is sound, there is serious doubt that a requirement of specific courses will achieve the desired results. Requiring the courses of all students guarantees a "captive audience" that encourages instructors to do "less than their best." At the same time, students are likely to resent being forced into the courses for which they see no immediate need and which many feel are very poorly presented.

As an alternative to requiring the courses listed above, the author recommends that a list of alternative courses be selected, from which students in vocational agriculture and others could choose, to meet the requirement of a broad, general understanding and appreciation in areas of communication, social science, and humanities. Such a variety of choices will allow students to develop concepts "needed for functioning in a modern society," without also forcing them into the same mold.

b. Technical Education

Technical training for teachers of vocational agriculture has traditionally had a general agriculture emphasis. Students who indicated that they planned to qualify as teachers of vocational agriculture have been expected to take one or two courses in several areas of technical subject matter in the College of Agriculture. For example, the prospective teacher of agriculture has been expected to take one or two (possibly three) courses in animal husbandry, dairy husbandry and poultry husbandry; two or

three courses in agronomy; farm management; agricultural mechanics; horticulture; forestry and the like.

With increasing technology applied to agriculture, and with increasing specialization required of employees, both in farming and in agricultural business, it has become necessary for teachers of vocational agriculture to know "much more about one area of agriculture," even though they may know little about other areas.

For example a student who plans to teach in a situation where ornamental horticulture is taught, would specialize in courses related to this field for his technical agricultural preparation. On the other hand, a student preparing to teach vocational agriculture in a livestock producing area would probably specialize in animal husbandry or dairy husbandry for his technical preparation.

Chart 2, on page 34 indicates a number of areas of specialization from which undergraduates may choose. Note that the generalist is still listed. For many programs of vocational agriculture particularly at the high school level, it is desirable for a teacher to be a generalist and to have an understanding of the broad field of agriculture. This breadth of understanding is certainly necessary for teachers of agriculture who work with other teachers or students at the elementary and junior high school levels.

It is recognized that the degree of specialization recommended here may cause a problem of placement, if not of certification of teachers of vocational agriculture. We recommend that graduates be recommended for certification when they have completed the professional education program indicated in Chart I, page 33, and when they have completed one of the areas of specialization suggested in Chart 2, page 34, or when they can demonstrate competency in these areas in terms of previously formulated objectives. This places the responsibility for selection of candidates for teaching positions on the hiring agency. The transcript of credits accompanying the credentials of the candidate will provide the hiring agent with information regarding the technical competence of the candidate.

c. Professional Education

The program of courses for undergraduates who are planning to become teachers of vocational agriculture is outlined in Chart I, page 33

The professional courses including student teaching, sociology of education, psychology of education and methods of teaching are recommended to be offered in the field.* Under this program students would be expected to spend full-time in off-campus centers under the direction of a member of the College of Education faculty. In this environment, the barriers between education courses should be broken and the application of principles normally included in the respective courses would become meaningful, since students would have the school and community as a laboratory in which to study the application of principles included in the course content.

d. Occupational Experience for Teachers

One of the fundamental characteristics of vocational teachers is that they must have had experience in the field in which they are providing training. In the past, teachers of agriculture have met this requirement by having had at least two years of agricultural experience after age 15 and before they were recommended by Michigan State University for certification.

The expansion of the program of vocational agriculture into agricultural areas other than farming has made it advisable for prospective teachers to choose areas in which they would secure their experience. Also, due to restrictions on employment, in terms of age and other factors, some students must delay their experience program and meet the qualification while in college.

The accompanying chart, page 35 adapted from one by Dr. H. Paul Sweany suggests a sequence of college courses and work experience which will help a student meet the requirement of "experience in the occupation" needed for qualification of vocational agriculture teachers.

* See Conant, James B. The Education of American Teachers. pp.59-62, for related discussion.

In addition to experience in the occupation in terms of work experience, it is essential that teachers of vocational agriculture have the ability to communicate with farmers and personnel in agricultural business and industry. They must understand and appreciate rural values, and be able to apply scientific principles to the solution of agricultural problems.

The program for providing experience in the occupation should be designed to accomplish these abilities, understandings and appreciations.

We recommend that criteria be developed by the staff in agricultural education to measure the competence of students in terms of occupational experience objectives. Students who meet minimum standards may waive the requirement, or may seek to improve their abilities through additional experience.

<u>General Education 38</u>	<u>Technical-Subject Matter</u>	<u>Science 30</u>	<u>Professional Education 33*</u>
(Equivalent of these or other courses selected by the Agricultural Education Staff.)	Major 54 Outside Major 26	(Supporting to the major)	
Communication 5 ATL 9 Social Science 12 Humanities 12	Outside Major 30 Credits from Areas outside major (may be in one or more areas listed under major.)	Botany Entomology Zoology Geology Chemistry Physics Mathematics	Sociology Psychology 30* Methods Student Teaching 3 credits from: Economics Instructional Materials Philosophy/History of Education Guidance

* Off Campus

Chart I
Undergraduate Program for Students
Preparing to Teach Vocational Agriculture

MAJOR:*

General Agricultural Education

Livestock Production

1. Dairy
2. Poultry
3. Meat-Beef/sheep/swine

Agonomy (Production)

1. Crops
2. Soils

Horticulture

1. Fruit
2. Vegetable
3. Turf
4. Floriculture
5. Nursery
6. Greenhouse

Mechanics

1. Farm Machinery
2. Farm Building
3. Soil & Water
4. Electricity
5. Materials Handling

Forestry

Natural Resources

Agricultural Business

1. Elevator-Grain-Feed
2. Farm Equipment & Power
3. Fertilizers
4. Chemicals

Management

1. Farm
2. Agriculture Business

Training to be provided for:
High School, Young Post High School,
Adults

Chart 2
Undergraduate Areas of Specialization

* Areas of specialization may be developed within many of the areas listed.

	Summer	Fall	Winter	Spring
Pre-College	Work	experience equivalent of	one year	
Freshman	College	College	College	Work
Sophomore	College	College	Work	College
Junior	Work	Work	College	College
Senior	College (Education, off-campus)	College Education off- campus	College Education off-campus	College

Chart 3

A proposed Program for Preparing Teachers for Agricultural Occupations*
Including Periods for Occupational Experience

* See page 31- for suggestions concerning the desired outcomes from the occupational experience.

Adapted from chart by Dr. H. Paul Sweany

3. Conducting the Undergraduate Professional Education Program

a. Off-Campus Experience

As indicated in the chart on page 33 , it is recommended that ten quarters of the undergraduate training program be conducted on-campus.* Two quarters of off-campus work are recommended. In these two quarters students will be enrolled in the professional courses required for teacher certification in Michigan.

As indicated earlier, experience of students over many years has shown that such courses as educational psychology, sociology and others have little meaning for students until they get into an environment where they can observe and study the application of principles in a school community situation. Offering these courses in off-campus situations will enable students and professors to make constant application of principles in situations that students can observe first hand.

The program of two quarters for professional education off-campus will also give students a longer time to observe and practice teaching techniques, observe community practices and institutions, develop needed competencies and become oriented to the role of the teacher in the local community.

The students would be assigned to a school, and for their student teaching, would be assigned to an approved supervising teacher. For opportunity to study the psychological, sociological and community operation, the students should be able to work with appropriate school personnel and with leaders outside the school.

It is recognized that there are problems associated with this recommendation. Among these are the feeling that no one faculty member is able to teach a "block" of courses including educational psychology, educational sociology, special methods, and to coordinate student teaching. While this may be true in some cases, there is little doubt but that many faculty members are perfectly capable and in fact are experienced in teaching in all of these fields in on-campus situation. On the other hand, when the idea of the off-campus program is accepted, several alternatives will become apparent.

* See, Position Paper on Student teaching Programs Developed by Deans and Directors of Michigan Teacher Education Institutions. Mimeo. Lansing, Michigan-Michigan Department of Education, Bureau of Higher Education, 1968.

In addition to the possibility of assigning one faculty member to handle the program, a group of faculty members may be assigned to work on a "team teaching" basis so that each member may present his "speciality" in relation to the school and community situation where the students are located, and in terms of the competencies specified by the objectives of each student in the group.

It is obvious that students working in community situations will be likely to pursue different avenues for learning the psychological and sociological aspects of school-community problems. Their work will not be as "uniform" as traditional university course work. However, the discussion and reports of students will serve to point up essential principles more adequately than is possible when the courses are offered in the academic university environment. At the same time evaluation by students and faculty will be in terms of demonstrated mastery of skills, concepts and understandings of individual students.

A second problem is one of cost. Some students may feel that the two-quarters of off-campus work will be more costly than similar work on-campus. For students who depend on part-time employment while in school this may be true. On the other hand, the costs for board and room will probably be less than the costs on-campus. When measured in terms of benefit to students there can be little question as to value of the recommendation.

The travel costs for the faculty members is a third item of cost to be considered. Students could be located in groups (or clusters) where they could be brought together for seminars and class discussions in sufficient numbers to justify the salary and travel cost of the faculty members. It must also be recognized that the cost for faculty members for this program need not be greatly different from the present costs of operating the off-campus student teaching program.

b. Upgrading Teachers with Special Certificates

When teachers with provisional certificates are not available it is the practice of the State Board of Education to grant "special certificates" to individuals to fill the positions. In the case of vocational agriculture teachers, individuals with experience in agricultural business and/or farming might be granted a special certificate to teach in a specific school.

For those who wish to continue in teaching, the teacher education staff at the university has a responsibility to help upgrade these individuals so they may qualify for a provisional certificate.

This responsibility includes:

1. evaluation of present level of training
2. evaluation of experience
3. developing programs of course work and experience to assist in eventual qualification of the individual.
In some cases this program will include enrollment of the individual in courses (either on-campus or in off-campus centers), coordination of his work in the classroom with a fully qualified teacher as a supervisor or other arrangement which will lead to professional and technical competence.

A member of the staff in teacher education in agriculture should be assigned to work with teachers holding special certificates for vocational agriculture, to assist them in developing a program to meet the requirements for the provisional certificate in the state. As more individuals are recruited from business and industry to teach in specialized programs, particularly in area vocational-technical schools, the scope of this program will become increasingly important.

c. Upgrading Community College Teachers

The need for upgrading teachers of vocational agriculture at the community college level is even more acute than for the high school. At the present time teachers in the community college are usually required to have a Master's Degree. This is commonly in the subject matter field. In many cases these teachers have had no professional education courses and have no previous teaching experience.

Vocational teacher educators in agriculture must accept responsibility for providing programs to help these teachers grow professionally.

This will require assignment of personnel to

1. advise these individuals
2. to offer appropriate instructional programs (these may be either credit or non-credit programs)
3. to arrange for technical programs in agriculture, science, communication and other areas for teachers. It should be noted that many of the professional courses or programs to assist in upgrading vocational community college teachers will be in fields such as guidance, supervision, adult education and others outside the vocational agriculture area. The vocational agriculture staff will need to work with many other branches of

the College of Education. The College of Education must be committed to a program of upgrading vocational instructors in the community college.

4. Administration of Vocational Teacher Education in the University.

There are two schools of thought regarding the location of the vocational agricultural teacher education program. As was indicated on page 12 in approximately one-half of the institutions in the U. S., the program is administered in the College of Education and in the remaining one-half administration is centered in the College of Agriculture.

There are many arguments for each administrative organization. It is not necessary to enumerate them at this point. The author believes that administration of the program is more appropriately in the College of Education so long as the unique characteristics of vocational education in agriculture can be preserved and so long as teachers capable of meeting the vocational needs of their students can be prepared.

In this connection, it is essential for all prospective teachers to develop understanding of the need for cooperation among faculty members in the school system. On the other hand, as teacher education programs get larger, there is a tendency, to try to achieve this cooperative attitude by forcing all students "through the same mold." This tendency needs to be avoided at all costs. Each teacher must recognize the contribution of his own subject matter field to the development of students as well as demonstrate the ability to cooperate with others in their respective areas so that they may also contribute to the development of students.

a. Relations with College of Agriculture

As indicated in the Introduction, the vocational agriculture program functions as an arm of the College of Agriculture even though it is administered separately, at the federal, the state and at the university levels. The college of agriculture is concerned that teachers of agriculture be well grounded in the technical and scientific aspects of agriculture, and that they be kept up-to-date subject matter wise. The university, particularly the College of Agriculture, simply cannot afford to have its graduates, who are teachers of agriculture, out-of-date in terms of recommended practices and scientifically based procedures.

This leads to the recommendation that training of teachers of vocational agriculture and extension workers be coordinated to the point that training programs become very nearly identical in terms of overall outline and procedures. However this in no way implies a common mold since the proposed program provides for a great deal of flexibility. For example, the students who choose to prepare for cooperative extension work, would follow the same program as those preparing for teaching vocational agriculture except that the extension student might be placed in a county extension office for the work corresponding to student teaching.* However, he would be expected to participate in the same seminars and classes as the vocational agriculture teacher trainees. (See chart, page 33)

Other alternatives which have been suggested include: (1) Provide the same experience and degree for both prospective teachers and extension workers (2) Broaden the experiences for prospective extension workers and grant a degree in community service (3) Provide the student teaching experience in adult education for the prospective extension workers.

For students who are to become teachers of vocational agriculture, the coordinator for training of extension personnel and teachers of vocational agriculture would provide an additional dimension in terms of working with another educational agency in local communities. The cooperative extension service carries out a very extensive educational program in agriculture and related occupational fields. One function of the service is to help introduce new practices and to transmit research results to farming, business and industry.

While the function of the teacher of agriculture in the public school is somewhat different, it is still important for teachers of agriculture and cooperative extension workers to understand their respective programs and functions.

* Placement in a county cooperative extension office for "student teaching" would not qualify the student for a teaching certificate.

A program such as this, introduced at Michigan State would bring into closer relationship the two major professional education groups related to agriculture. At the same time, it would encourage a closer tie of the local school to important segments of the community, in both the rural and in the urban areas of the state. The school would assume a more dynamic role in society than is currently the case.

It would assist extension personnel with their teaching program by stressing methods of teaching and encouraging comprehensive evaluation procedures.

Many times it is difficult to offer courses designed for specific groups in an institution such as Michigan State University. For example, in the case of training teachers of vocational agriculture it becomes difficult to offer either an education class or a technical agriculture class that specifically meets the needs of vocational agriculture students. Combining the training programs of extension and vocational agriculture students would provide sufficient numbers so that some courses could be designed specifically for these students. At the same time, when large lecture sections must be organized, with a break down to discussion groups, the combination of extension and vocational agriculture students would justify a specialized discussion group section.

b. In the College of Agriculture

We have indicated above a preference that administration of the training of teachers of vocational agriculture be in the College of Education. However, if a decision is made in the future, to transfer this function to the College of Agriculture, the teacher education staff in vocational agriculture would need to immediately develop a cooperative relationship with the College of Education for helping to develop concepts of a unity of educational program, so that teachers coming out of the College of Agriculture and those from the College of Education would have some common understandings rather than being complete separatists. These common understandings would include appropriate concepts related to guidance, curriculum, philosophy of education, supervision and others.

On the other hand, administration in the College of Agriculture would encourage closer cooperation between those in vocational agriculture, both teachers and teacher educators, and Cooperative Extension and Agricultural Experiment station personnel. Preparation of instructional materials dealing with technical agriculture would be facilitated. Instructional materials dealing with suggestions on "how to teach" might be curtailed.

5. Staffing the Undergraduate Program

Staffing for the undergraduate program in vocational agriculture as described above would need to be adjusted to number of enrollees. In the quarters when students are placed in local communities and enrolled in education courses such as educational psychology, methods, student teaching and school and community, the requirement for staff time might rise. These high demands might be supplemented by specialists who would assist, (much as in a team teaching situation) with such areas as cooperation between various vocational programs, the role of the teacher in guidance, coordination of occupational experience and the like.

The student teaching aspects of undergraduate teacher education programs requires a staff, both from the university and supervising teachers that are able and willing to provide the student with experiences in the use of up to date and acceptable method. During the 1970's, 80's, and 90's these are likely to include, at the high school, area school and community college levels, several types of individualized and small group instruction coupled with some large group lecture sections; team teaching, to assist in bridging gaps between present subject matter areas; programmed learning in some areas of vocational training; use of community resources for occupational experience, and many others. The purpose of these methods and materials is primarily to enable each student to pursue his own interests and objectives, under the guidance of the teacher, and to avoid forcing all students through an inflexible program. This means that the student teaching program must be carefully controlled so that this aim can be achieved. To achieve these goals, and other innovations as they develop, the vocational education staff in agriculture will need to develop a more definite arrangement with the schools in which teachers are given experience, so that the supervising teachers can be kept abreast of new developments in teaching methods, practices, and materials and so they can incorporate these in their programs of instruction.

6. Training for different levels of teaching (differentiated staffing)

a. Para-professional staff.

Much is being written today--1969-1970-- about differentiated staffing. The basic concept of differentiated staffing can be adapted to vocational education in agriculture; (1) where area vocational schools are established, (2) where intermediate school districts perform services for a number of schools in the area, (3) where close cooperation exists between high schools and community colleges in the area, (4) where there are multiple teacher departments.

In each of these situations it is possible to develop a differentiated staffing arrangement in which para-professionals, (non-certificated personnel) may be employed for some kinds of assignments, and various levels of certificated professional personnel assume appropriate roles in teaching.

Para-professional staff may be employed for many time consuming tasks such as maintenance of equipment in shops, laboratories and land laboratories; keeping records of students including placement, occupational training programs and other clerical and secretarial duties; and the preparation of audio and visual aids under the direction of the professional staff who are familiar with their use in the classroom.

The para-professional may be trained in a two year post high school program which might be offered at a community college or vocational technical institute or in the agricultural technology institute at Michigan State University.

b. The professional staff

It is generally assumed that differentiated staffing implies different levels of training. Although this is not necessarily the case, the duties and responsibilities normally assume different levels of training. (See page 44). For vocational agriculture, an example to indicate different levels might include, (1) a teacher aide (para-professional, see above) responsible for the general maintenance of a school shop or a land laboratory. He would be expected to maintain equipment and supplies, supervise the operation of the facility and keep it in condition for satisfactory teaching. He would be expected to assist students with their activities based on the assignments given by the master teacher or the teacher assistants.

(2) A teacher assistant would be expected to plan the lessons and teach the classes to help students reach specific objectives. He would plan the student activities to help the students achieve their objectives.*

* For more extensive discussion of differentiated staffing refer to (1) The people who serve education, and (2) Staff differentiation and the preparation of education personnel in "Teacher Innovation--Issues and Innovation," listed in the bibliography.

- (3) A master teacher would work with the assistant teachers to develop an over-all plan for the course or the unit of instruction. He might teach in large group situations as well as work specifically with individual students on problems or on special projects they undertake.

It is evident that training teachers of vocational agriculture for differentiated teaching requires modification of present practice. Teacher aides (para-professionals) responsible for shops, greenhouses or land laboratories, need technician level training. They will need to be able to work with students in learning situations and to prepare their materials to create the best possible learning environment.

Assistant teachers will perform at a level above that of the technician. They may demonstrate scientific phenomena in the laboratory, shop or classroom, and assist students in making applications in occupational situations. These teachers must be skillful in terms of educational techniques. They must be able to use methods that will arouse enthusiasm in students and that will stimulate students to satisfy curiosity through further investigation.

The Master teacher will be one who is the expert in his field of work. He is not only well informed and highly skilled in the occupational field in which he is teaching, but he is also a "master" in terms of teaching techniques.

Since individuals vary in their aspirations as well as in their abilities it is not possible to establish "hard and fast" criteria for training of the three groups described above. It is the opinion of the author that the teacher aide should be trained in a post-high school technician level program designed for the purpose. The teacher assistant should have a Bachelors or a Master's Degree in Vocational Agriculture Education with a minor in a field of agriculture or related area (such as economics, entomology, etc.) The Master teacher should have a Specialist Degree in agricultural education or in vocational education with a teaching certificate in vocational agriculture and with a strong background of training and experience in the agricultural area in which he is specializing.

It should be emphasized that the above description of assistant teachers and master teachers assumes that individuals in each category are certified teachers, capable of conducting an instructional program with individuals or with groups of students.

In some cases the para-professionals may be recruited from the community. In other cases they may be assigned as interns from among college students who are preparing for teaching and who are seeking experience in the field. In this case the teacher education staff in vocational agriculture should play an active role in the placement of these individuals and in helping them plan a program of experiences to be secured while they are on the job.*

c. It is possible to provide some kinds of instructional materials through intermediate school district organization. Currently such items as visual equipment and materials, audio equipment and the like are made available through some of these districts. These services may be expanded in the future through the efforts of the intermediate school district personnel or through the voluntary efforts of neighboring school districts.

While community college districts and local or area vocational schools may be administered at the local level through different agencies, it is possible to develop a cooperative program incorporating the idea of the master teacher, teacher assistants and teacher aides between these organizations. Where the community college employs specialists in specific phases of agriculture to train technicians, arrangements may be made for the specialist to teach specific units to high school students in the area, while the "general" teacher of agriculture, or teacher aides assist with some of the activities of the community college group. It is even possible that the roles of individual teachers may be reversed, so that one person serves as the Master teacher on some occasions and as the assistant on other occasions.

B. The Masters Degree

The Masters Degree program described in this paper takes into consideration the 1967 changes in the Michigan Teacher Certification Code which requires a minimum of 27 quarter hours of credit for the continuing certificate.**

* For more detailed discussion, see the following references listed in the bibliography.

- (1) Innovations for Time to Teach.
- (2) The Internship in Educational Administration.
- (3) Differentiated Staffing for Vocational-Technical Education.
- (4) Team Teaching in Action.

** State Board of Education Rules Governing the Certification of Michigan Teachers. Lansing, Michigan: Department of Education, Bureau of Higher Education. July 1967. p. 4

However, the recommendations are not necessarily confined to these requirements, since many individuals seeking the Masters Degree in Agricultural Education look forward to employment at the community college, post-high school technical level or adult education, where teacher certification is not presently required. Also the long-time aim of certifying teachers on the basis of demonstrated competency, as described on pages 16-18 must be kept in mind.

Included in this section are suggestions concerning:

- (1) the clientele
- (2) the programs for Masters candidates including:
 - (a) professional education program
 - (b) technical and related programs
 - (c) 5 year teacher education program
 - (d) program for college teachers

1. Clientele

Candidates seeking the Masters Degree in agricultural education will come mainly from two groups. First, teachers who wish to up-grade themselves as teachers of vocational agriculture and as supervisors or directors of vocational programs in the public schools. There are many incentives for seeking the Master's Degree including,

- (1) the desire to upgrade one's-self professionally
- (2) the salary incentive that is an important part of teacher contracts and salary schedules
- (3) the opportunity the possession of the degree offers for promotion in the school system
- (4) the opportunity to become recognized at a higher level in the differentiated teacher hierarchy and
- (5) the opportunity to qualify for an "Education" position in business and industry, or in a service agency.

Since the teacher certification code requires 27 quarter hours beyond the B. S. degree for the continuing certificate, qualified teachers will find it advantageous to complete the requirements for the Master's Degree by completing the additional requirements and thus qualifying for the higher level position and higher salary associated with the degree.

Second, it has been pointed out, that some teachers of vocational agriculture will be recruited from business, industry and farming. In many cases these individuals will possess the B.S. degree. Some may possess a teaching certificate. Limited experience indicates that many of these individuals will have at least two immediate objectives, viz: to prepare for teaching by taking professional education courses and to secure a Masters Degree.

It will be necessary for the staff in agricultural teacher education to accept an unusually heavy role of advisement of Masters Degree candidates. This is largely due to the variety of backgrounds of vocational agriculture candidates for the degree and to the diversity of professional objectives of the candidates. Even though it is current practice to "tailor make" Masters programs for individuals, the future is likely to present a still more complicated task for the advisers because of the diversity of backgrounds of experience of students and of the variety of occupational objectives of the candidates.

2. The Program for Masters Degree Candidates

At Michigan State University current practice, 1969-70, for Masters Degree programs in vocational agriculture is to require completion of 45 quarter hour credits with a minimum of approximately 30 credits in Agricultural Education and related vocational education courses and a maximum of approximately 15-20 credits in related areas such as agricultural engineering, plant sciences, animal sciences and others. A thesis may be included for 6 - 15 of the 45 term hours of credit.*

As part of the program for those who do not choose the thesis option, it is recommended that a "special report" be required. The nature of the special report may be quite flexible. It should be designed to provide experience in organizing and writing acceptable papers.

In some cases, students might write on specified aspects of an occupation in terms of training needs. Others might review literature on an innovative aspect of education and make recommendations as to application to the program of vocational agricultural education. In the case of the intern student, the report should cover some aspect of the intern experience together with an appropriate rationale and review of literature to justify reactions and conclusions described by the intern.

Many other areas will provide a basis for special reports, but regardless of the subject, the paper should be evaluated in terms of the thoroughness with which the work is done and in terms of the quality of the manuscript. It should be noted that teacher educators in vocational agriculture should be assigned to coordinate intern programs.

* See: Description of Courses and Academic programs for Graduate Study, Michigan State University Publication, Volume 63, Number 8, East Lansing, Michigan 1969 pp.66.

This may be accomplished by:

1. scheduling periodic visits to the school in which the intern is employed.
2. scheduling seminars (for credit) at locations convenient to the interns--either on campus or off campus.
3. scheduling periodic visits of the interns to the office of the staff member, where the experiences of the intern can be reported and discussed.
4. receiving periodic written reports from the intern and/or his local supervisor.

In the following pages are recommendations for programs leading to the Masters degree. These are described under the following headings:

1. Programs for those who are already certified and who have had teaching experience.
 2. Programs for those who are already certified and who have not had teaching experience.
 3. Programs for those who are graduates of the college of agriculture and who wish to become certified and to earn the Masters degree.
 4. Programs for those who are not concerned with certification, but who wish to teach at the community college level.
- a. Program for those who are already certified and who have had teaching experience.

The suggested Masters program for those certified to teach vocational agriculture is diagrammed in Chart 4 on page 51. The suggestions are flexible, allowing opportunity for individual students and advisers to plan programs adjusted to the background and experience as well as to the needs of individuals.

Since this program is designed for those who have certificates to teach vocational agriculture and who have had teaching experience, field experience is not listed in the chart as a requirement for these Masters candidates. The student and his adviser should include internships and/or independent study when these are appropriate to the needs of the student. For example, an individual who is preparing for a different position, such as moving from a teaching position in high school to

a directorship of vocational education in a community college might undertake an internship program in the community college as part of the Masters program.

- b. Program for those who are already certified and have not had teaching experience.

Chart 5 on page 52 , outlines the program for Masters candidates who were previously certified to teach and who have not had teaching experience. This program includes an internship of one-half time for one year. It is recommended that the internship be served in a capacity closely associated with the kind of position for which the candidate is preparing. For example, if the candidate is preparing for employment as director or supervisor of vocational education in a secondary school system, he should serve his internship in such a school, and under the supervision of a staff member serving at the supervisory or director level in the school system.

On the other hand, if the aim of the candidate is to prepare as a teacher assistant, or as a master teacher, he should serve his internship under such a teacher.

c. The 5-Year Teacher Education Programs

- (1) 5-Year teacher preparation/certification programs leading to certification and a Master's Degree

For the purpose of clarity, two types of five year programs are described. While recommendations for these are similar, there are differences in the students for whom the programs are designed. Reference to Chart 6 on page 53, will indicate that by the end of the fifth year plus one full quarter, the student will have completed a program equivalent to the undergraduate program leading to the Bachelors Degree in agricultural education and will have the requirements for the Masters Degree. In addition he will have had at least two quarters of employment as an intern under the guidance of a qualified teacher or supervisor of a vocational agriculture program. Professional education courses would include an internship experience of at least one quarter (two or more quarters on a one-half time basis) in which the student would serve as an assistant teacher and be appropriately reimbursed by the local board of education. (See section on differentiated teaching pages 42-45

- (2) For Masters candidates who are graduates of the college of agriculture and who wish to qualify for certification as teachers of vocational agriculture.

The recommended program is outlined in Chart 7 on page 54 . This program will require more time for completion than is normal for the Masters degree program, since a minimum of 30 quarterhours of undergraduate professional education courses will be required. However, the sequence of courses may be adjusted so that the student may take maximum advantage of the field experience and the on-campus courses included in his program.

d. Masters Programs for College Teachers

Currently, 1969-70, teachers of agriculture at the post-high school level are required to have a Masters Degree but are not required to be certified by the state. However, as indicated earlier, there is some evidence that community college administrators favor candidates having such teaching certificates. It is likely that such certificates may become a requirement within the next decade.*

Candidates who seek the Masters Degree in agricultural education and who aspire to positions where a teacher's certificate is not required, should be held to the same requirements as other similar Masters candidates except that their student teaching program may be provided in a post-high school situation. In the case of cooperative extension personnel the equivalent of the student teaching program may be provided in a county, or district cooperative extension office.

In neither case would candidates receive a teaching certificate to teach at the high school level. However, transcripts would show that they had had appropriate field experiences.

C. The Specialist Degree Program

The Specialist Degree Program is a relatively recent development in education and particularly in vocational education. It is designed as a step beyond the Masters degree, but is not as sophisticated a degree as the Doctor of Education or Doctor of Philosophy degrees.

* The State Board of Education Rules Governing the Certification of Michigan Teacher, states, "...directed teaching at the level for which the certificate is granted." page 2. Since the Board does not issue certificates to teach at the Community College level, such a change will need to be accomplished through legislation.

MASTERS PROGRAM for Teachers of Vocational Agriculture

45 Credits

The On-Campus Program	General Education	Professional	Technical of Related
Vocational-Agriculture or Vocational courses ----- 12-21 Credits	History/Philosophy Guidance Supervision Curriculum Educational Psy- chology Educational Socio- ology ----- 12-24 Credits	Special Report ----- 6-9 Credits	Appropriate courses in technical agriculture or in courses closely related to the agri- cultural area which the student is studying. ----- 3-18 Credits

Chart 4

MASTERS PROGRAM for Teachers of Vocational Agriculture

45 Credits

Professional

Special report dealing
with some phase of
internship experience
6-9 Credits

Internship ½ time, one year:
24 Credits

Vocational Education Courses:
including seminars, indepen-
dent study and classes
0-12 Credits

General Education Courses:
History/philosophy
Guidance
Supervision and Administration
Curriculum
Educational Sociology
Educational Psychology
0-12 Credits

Technical and Related

Appropriate courses in
technical agriculture or
courses closely related
to the agricultural area
which the student is
studying

3-15 Credits

Chart 5

PROGRAM FOR MASTERS CANDIDATE PREVIOUSLY CERTIFIED TO TEACH
BUT WITH NO PREVIOUS TEACHING EXPERIENCE

Professional and Related Courses	General Education Courses	Agricultural and Related Courses
<p>Same as required for the undergraduate program <u>plus</u> a minimum of 30 credits from the following*</p> <p>** Internship $\frac{1}{2}$ time for 2 quarters 15 Credits</p> <p>Special Report dealing with some phase of internship experience 6-9 Credits</p> <p>Vocational Education Courses 3-12 Credits</p> <p>Related Education Courses 6-12 Credits</p>	<p>Same as required for B. S. degree plus Vocational -agriculture teaching certificate</p>	<p>Same as required for B. S. degree Vocational-agriculture certificate</p> <p>PLUS</p> <p>Agricultural and Related courses beyond those required for the undergraduate program in agricultural education</p> <p>3-15 Credits</p>

* It is recommended that the Internship and the Special Report be required.

Note that off-campus education courses could be delayed until 5th year. However, these would be prerequisite to the internship described above.

Chart 6

FIVE YEAR TEACHER PREPARATION/CERTIFICATION PROGRAM

Vocational Agriculture		
Professional	Education and/or Vocational Education courses	General Education
		Technical or related courses: 3-18 Credits
A. Undergraduate:	12-21 Credits	
30 credits in education as outlined on page for undergraduates		Appropriate courses in technical agriculture or in courses closely related to the agricultural area which students are studying
B. Special Report		
6-9 Credits		History/ Philosophy Guidance Supervision Curriculum Educational Psychology Educational Sociology 12-24 Credits

Chart 7

MASTERS PROGRAM PLUS CERTIFICATION
TO TEACH VOCATIONAL AGRICULTURE

In this section we will consider the (1) purpose of the degree, (2) the clientele to be served, (3) program requirements.

1. Purpose

The degree is designed to give recognition to those who complete an organized and well planned program beyond the Masters Degree. A program leading to the Specialist Degree is planned by the student and his adviser to help the student meet the goals of the student in professional education. In the process of planning the program, consideration is given to the background of training and experience the candidate has had and to his professional goals. In general the plans will include a program of 90 quarter hours of credit beyond the Bachelor of Science degree, that represent a unified program for the student. Note that the total of 90 quarter hours may include the credits earned for the Masters Degree. However, only those that contribute to the goals of the candidate for the Specialist Degree should be included.

2. Clientele to be Served

Persons who wish to continue an organized planned program of formal education beyond the Masters Degree, but who do not want to complete the research necessary for the doctorate will be likely to enroll for the Specialist Degree. Their aims and purposes will be varied. Some will be interested in improving their performance in present positions of teaching, supervision or administration. Others will want to qualify for a promotion, either within the school system, or in some other location. Still others will be interested solely in qualifying for salary increases which are provided for additional training.

In a differentiated teaching situation in high schools and in community college, the Specialist Degree will be encouraged for those in the Master teacher role.

3. The Program for the Specialist Degree

Chart 8 on page 56 indicates the general scheme for organizing and planning the program. Note that the program includes course work in the technical agricultural field to enable the candidate to update himself in terms of new developments and new aspects of agriculture. Such "course work" may include activities to give the student up-to-date occupational experience.

Professional Courses and Credits	Technical and Related Courses and Credits
Vocational Education Courses beyond Masters Degree courses 12-40 credits	Courses in Agriculture and Related subjects from the Masters Degree Program* 0-10 credits
General Education and Related* Courses beyond those completed for the Masters Degree 12-40 credits	Additional courses in Agriculture and related subjects 3-40 credits
Note:	Total technical and related courses should not exceed 40 credits
In lieu of a written examination of 3-4 hours the student should be assigned a topic on which he will prepare a paper. He should be given a period of 2-3 weeks to complete and submit the paper.	
* Related courses may include those taken outside the College of Education, to meet the professional needs of the student. Areas such as the following may be appropriate:	* It is recommended that courses completed 5 or more years prior to completion of the degree should not be allowed for credit toward the degree.
Economics Psychology Sociology others Labor Relations Communications	

Chart 8

SPECIALIST DEGREE IN VOCATIONAL AGRICULTURE

It should be emphasized that it is unwise to accept credits in technical agriculture or professional credits that are more than 5 years old. In some cases, it will be advisable to place a still lower limit on the age of acceptable credits.

At the same time some individuals among teachers of agriculture and cooperative extension personnel and others who seek the Specialist Degree, will have been engaged in work where they have kept up-to-date in technical agriculture and/or professional education practices. For individuals who have had such experience, out-dated credits might be "validated" by performance tests, or by certification by appropriate individuals, that the credits to be accepted are representative of current information and practices and that the individual is competent in specified areas of agriculture and/or education.

The reader should note, also that this proposed program does not require an internship. Since internships are presentl isted with course numbers in the University catalog and no doubt will continue to be listed, it is possible for a candidate and his adviser to include an internship in the program if it is desirable. However, the majority of individuals pursuing a Specialist Degree will have had recent experience as professional workers in an educational institution and therefore are likely to profit more from a series of courses, seminars and independent studies than from an internship. On the other hand, an internship in a new situation may be a very valuable experience for some candidates.

Near the time the candidate will complete requirements for the degree, it is currently the practice to require a 3-4 hour written examination over the major field, (in this case, agricultural education). It is recommended that this practice be changed, and that the examination consist of the preparation of a comprehensive paper on an appropriate topic. The topic may be chosen by the candidate from a list submitted by the staff in agricultural education. A period of 2-3 weeks should be allowed for completion of the paper. Preferably the time for preparation of the paper will coincide with breaks between quarters.

Evaluation of the student will be based on his demonstration of ability to prepare a well organized, well written paper with evidence of ability to synthesize ideas gleaned from the literature.

D. The Doctors Degree

1. Purpose

The Doctor's degree represents the highest degree to be earned at Michigan State University. From the point of view of students pursuing the degree, the primary purpose is to qualify for a high level position in agriculture, in professional education, or in closely related fields in business and/or industry. Accompanying the desire to qualify for top level positions is the (1) desire to qualify for higher salaries associated with these positions, (2) the prestige and status that is associated with the position and the feeling of accomplishment that individuals associate with having obtained the degree. These purposes should in no way minimize the desire of doctoral candidates to do research or to become qualified for greater service to the society. It is the purpose of the teacher education staff in vocational agriculture as well as of the total institution, to help students achieve their respective goals. This will require a carefully worked out program for each individual candidate, designed to stimulate and challenge each individual to greatest possible achievement but without confining any candidate to rigid requirements.

For some candidates who aspire to administrative or supervisory positions where they have responsibility for a broad variety of vocational programs, a degree in vocational education will be desirable. While it is outside the scope of this paper to recommend details for the doctorate in vocational education, the basic ideas should be similar to those described for the doctorate in agricultural education.

The institution relies to a greater or less extent on the research of its doctoral students to contribute to the total research efforts of the staff in agricultural education and the research contributions of doctoral students should be clearly recognized. These are mutually beneficial and each is dependent on the other for maximum achievement.

2. The Doctoral Program

Both the Doctor of Philosophy and the Doctor of Education degrees are offered by the College of Education at M.S.U. and either may be earned by candidates majoring in agricultural education. Traditionally, the Doctor of Philosophy degree is oriented toward research to a greater extent than is the Doctor of Education. At Michigan State University the staff in agricultural education has not emphasized this distinction. The major distinction is that the Doctor of Education requires

a greater amount of work "outside the college of education," although an equivalent amount of "outside" work is optional for the Doctor of Philosophy degree.

Purpose of the two degrees has been described above. In the following sections we will recommend:

- (1) programs for the two degrees
- (2) staffing the doctoral program
- (3) additional directions for the doctoral program which need to be considered.

a. The Doctor of Education Program

Chart 9 on page 60 outlines the recommended Doctor of Education program. The recommendations include a number of changes from 1969-70 practices in the M. S. U. College of Education. These are described briefly as follows:

- (1) It is recommended that the candidate include in his program 3-9 credits in the area of history and/or philosophy of education. Specific courses to meet this requirement should not be identified by the College, the department, or by the staff in agricultural education, but the courses to be taken by individual candidates should be selected to fit his program.
- (2) Provision has been made at M.S.U. for courses and consultant help for doctoral students and faculty in statistics and statistical method. Similar assistance should be made available for students and faculty who wish to do philosophical, historical or other types of non-statistical research.

It is recommended that candidates for the Doctor of Education degree be encouraged to choose the type of research best adapted to their proposed dissertations, and that appropriate courses be developed to assist students with appropriate research methods.

- (3) It is recommended that much more emphasis be placed on the internship as a learning device for Doctor of Education candidates. This recommendation is in line with the idea that the Doctor of Education is primarily a "practitioners degree" and an appropriate internship will provide valuable experience for practitioners. Accomplishment of the purpose of such internships will require that the internship situations be very carefully selected and that the duties and experiences to be provided by the internship be spelled out in detail.

Note that the experiences and problems observed by the candidate during his internship may provide the basis for his dissertation as described in recommendation #4.

Foundation Courses 9-24 Credits	Related Courses* 9-27 Credits	Major Courses* 30 Credits	Thesis 30-36 Credits
History/philosophy 3-9 Credits <hr/> Research Methods: 6-15 Credits Statistics or Philosophy or Historical <hr/>	2 fields outside the major. One or both outside of education.	Related to Vocational Agriculture to be selected with approval of committee. May include courses in: Vocational Education Curriculum Guidance Administration and Supervision Educational Psychology Social Foundations of Education Others	(Theses may be based on an internship in which candidate carries out application of research in a practical and appropriate situation)

*

May include credits earned in internship, independent study and seminars.

Chart 9

DOCTOR OF EDUCATION PROGRAM

- (4) Recommendations regarding the dissertation for the Doctor of Education candidate are related to the nature of the dissertation-- not to changes in scope or degree of sophistication.

Since the Doctor of Education is often described as a "practitioners degree" as opposed to the "research degree" attributed to the Doctor of Philosophy we recommend that Doctor of Education candidates be given the opportunity to prepare dissertations in which they make application of historical, philosophical, statistical and other materials to the solution of current problems in education and that the candidate carry out his recommendations in a practical and appropriate situation. Results of his program would be evaluated and reported as part of his project.

b. The Doctor of Philosophy Program

The program for the Doctor of Philosophy degree is outlined in the chart on page 64 . As indicated above, the Doctor of Philosophy degree is commonly described as a research degree. It is normally related to basic research rather than to research to solve current problems. For example, the basic researcher may study certain aspects of "How Children Learn." The practitioner might apply these findings to the development and evaluation of an instructional program for children in an economically depressed area or to some other appropriate program.

With this distinction in mind, it is recommended that the program for the Doctor of Philosophy degree remain much as it is at present (1969-70) except for the recommendation to provide courses and consultative help for those who wish to undertake research of an historical, philosophical or other non-statistical nature. (See recommendation No. 4, above)

3. Additional Directions for Doctoral Programs

The doctoral program in vocational-agriculture (and other areas) at MSU has recently (1969-70) been criticized by some individuals. These individuals feel that course work, seminars and other assignments place too much emphasis on local educational problems and procedures and not enough on the development of persons to assume leadership roles at the state, federal or international levels. Whether the criticism is valid is not important at this point. It is more important to consider the criticism when doctoral programs are planned in terms of courses, seminars, independent study projects, internships and other activities to be included. The content of the total program should involve adequate consideration

and study of practices at the state and national levels as these affect vocational education programs in the nation. Areas that need to be kept in mind when programs are developed include such items as:

- (1) how decisions are reached regarding distribution of money for vocational education
- (2) how specific requirements or restrictions affect the quality of education in local areas
- (3) the effect of the methods of allocating research money on the kind and quality of vocational programs
- (4) the effect of methods of allocating money for teacher education on the kind and effectiveness of programs

Other aspects of areas of study at the doctoral level include dissemination of ideas and the development of innovative projects in the total program of vocational education in agriculture, including, not only the consideration of local programs but also of state and federal administrative, teacher education and research activities.

The need for developing "across the board" programs of vocational education has been discussed for many years. Examples are often cited of occupations in which knowledge and competency is needed in more than one of the traditional vocational fields. The National Vocational Education Acts of 1963* and 1968** add strength to these trends, by emphasizing that vocational education programs be tailored to fit the needs of individuals for an occupation and by minimizing the allocation of federal monies to the specific areas of vocational education.

In many cases the intent of this legislation, as well as the need for "across the board" programs has been sabotaged at the state and institutional levels, when manpower and money has been diverted from "across the board" projects to building up one or two of the traditional vocational fields. Administrators and faculty have generally been reluctant to "give" to "across the board" programs at the expense of their own specialized programs.

* Public Law 88-210, 88th Congress. Vocational Education Act of 1963.

** Public Law 90-576, 90th Congress. Vocational Education Act of 1968.

No less important is the need for "across the board" programs between vocational education and some areas of "general education." Not only does "general education" represent a common body of knowledge and ability needed by everyone for living in a society, but also many aspects of "general education" are essential for acceptable vocational performance. Many examples can be cited. Perhaps two will be sufficient

- (1) Industry leaders, serving on an advisory committee for the author, in Washington in 1966, emphasized the necessity for salesmen of agricultural supplies to be highly skilled in communications.
- (2) The same group emphasized the necessity for a salesman of livestock feeds to have a basic understanding of biological chemistry. It is noted that a degree in vocational education is offered at the doctoral level. This degree is currently offered at Michigan State University, but it has not been considered here since this paper is limited to vocational agricultural education (see page 58). However it is recommended that doctoral candidates for the vocational education degree be allowed to take a "minor" of 12-18 quarter hour credits in one of the specialized vocational areas such as agricultural education, business education and the like. This choice should be made by the candidate.

It is recommended that the comprehensive examination for doctoral candidates, as presently (1968-1969) required be discontinued. As a substitute measure the ability of the candidate to attack a problem in his field of work and to prepare and present to the staff in agricultural education and others a paper dealing with the problem. Evaluate the paper and presentation on (a) its organization, (b) the quality of the writing and oral presentation and on (c) evidence of ability to glean and synthesize ideas from the literature to assist in solution of the problem.

In view of these observations and criticisms it is recommended that the College of Education take immediate steps to implement:

1. A program to develop "across the board" concepts, practices and programs in vocational education. This needs to be done without injury to, or deterioration of, established vocational programs in the respective fields of vocational education, particularly as it applies to teacher education at all levels.

Foundation Courses (Education) 9-24 Credits	Related Courses* 9-27	Major Courses* 30 Credits	Thesis 30-36 Credits
History/Philosophy 3-9 Credits <hr/> Research Methods Statistics History Philosophy 6-15 Credits <hr/>	2 fields outside the major, Both in educat- ion or one outside	Courses needed for the major. May be sel- ected from many fields.	

* May include credits earned in internship, independent study and seminars

Chart 10

DOCTOR OF PHILOSOPHY PROGRAM

2. A program to encourage the application of appropriate aspects of "general education" courses to the related fields of vocational education, and to include the resulting concepts in the teacher education programs for all secondary education students.
3. A different kind of comprehensive examination for doctoral candidates. We recommend that each candidate be assigned a topic which is related to his field of interest. He would be expected to prepare a paper on the topic within a period of two to three weeks. The candidate would be evaluated on his ability to organize and present in written and/or oral form, a document on the topic.
4. A program to include content (seminars, courses and independent study) designed to develop leadership not only for local programs of vocational education, but also to develop state and Federal leadership. As part of the Independent Study consideration should be given to requiring a manuscript suitable for publication in an appropriate professional journal.

E. The Non-Credit In-Service Program

One of the strengths of the program of vocational education in agriculture over many years is the program of non-credit in-service teacher education. This program has been coordinated and partially manned by members of the teacher education staff in vocational agriculture.

The in-service, non-credit program will become increasingly important as the training programs for Rural Manpower in which the College of Education is cooperating with the Cooperative Extension Service develop.

There are many kinds of activities that may be included under this in-service program, some of which may be closely related to research and development projects of staff members or to the development and dissemination of instructional materials. For purposes of this paper, the non-credit in-service program in Vocational Agriculture will be considered under (1) Professional, non-credit in-service program and (2) Technical, non-credit in-service program.

1. Professional, Non-Credit In-Service Program

For the most part these programs consist of participation of

vocational agriculture staff members at conferences, either state wide or in areas of the state. The conferences involve teachers of vocational agriculture, school administrators, guidance counselors and others. Participation includes giving talks, leading discussions or demonstrating in appropriate professional areas.

Included may be presentations dealing with new programs needed in the total vocational agricultural field; new opportunities in teaching vocational agriculture; new developments, materials and techniques for teaching certain aspects of vocational agriculture and the like.

In some cases in-service, non-credit activities are carried out by staff members in connection with research and/or development activities. Examples include a staff member working with a group of teachers to plan innovative programs the teachers will try out and evaluate; a staff member meeting with teachers to secure reactions to instructional materials the teachers have tested; and a staff member meeting with other teachers to work out "across the board" or other kinds of programs related to vocational education.

2. Technical Non-Credit In-Service Programs

The problem of keeping vocational teachers up-to-date technically is acute. Technology changes so rapidly, particularly in agriculture that teacher education institutions are faced with an increasingly serious problem of providing opportunity for teachers to keep up with the changing technology. To accomplish this a staff member in vocational agriculture should have time assigned to arrange and coordinate a comprehensive and well organized program of non-credit technical in-service training.

When the recommendations for joint training programs with vocational agriculture and cooperative extension trainees are implemented, the recommended technical non-credit in-service program will be facilitated since the type of in-service programs now provided for cooperative extension personnel would likely be organized to also include teachers of vocational agriculture.

By the same token, the staff in vocational agricultural education would be expected to participate in in-service non-credit meetings of extension personnel, to assist in up-grading teaching techniques and materials.

It is recognized that in-service non-credit programs represent activities that are not normally a part of the teaching function of a College of Education. They definitely are a part of the service function of the Land Grant University. As such, the cost of these activities may be considered as "one of the activities the College of Education would not normally undertake." and therefore the Michigan Department of Education should undertake to finance this activity by the use of a portion of its teacher education funds. (See pages 75-76)

3. Contribution of Vocational Agriculture Staff in International Education

The vocational agriculture teacher education staff has made many contributions to international programs. This activity will continue, and is likely to increase, with staff members who can be assigned to serve as advisers in the development of agricultural education in the respective countries.

VI The Instructional Materials Program

The preparation and distribution of instructional materials should be a supporting arm of the total vocational agricultural program. As such it contributes to both pre-service and in-service teacher education activities.

A. Pre-Service

At the pre-service level the preparation and use of instructional materials is an integral part of the training program. Materials are prepared for faculty members responsible for the courses, they are prepared and supplied for student teaching, and students are given assistance in learning how to prepare materials not otherwise available.

B. In-Service

In the past many materials have been produced for distribution to teachers in-service. At the same time these materials have been available and have been used for undergraduate students in methods courses and in their student teaching program.

The materials have been in the form of:

- (1) sets of slides, overhead transparencies and video tapes
- (2) bulletins suggesting instructional activities in various subject matter areas,
- (3) source units and study guides,
- (4) bibliographies showing sources of instructional materials and others.

These materials have been centered in subject matter areas, and have emphasized appropriate teaching methods and procedures in each instance. Thus an integration of professional and technical materials has been achieved.

1. Responsibilities of the Staff in Vocational Agriculture for the Instructional Materials Program

In addition to assisting teachers-in-service with the use of new materials and new methods as they are developed, the vocational agriculture staff members are also responsible for:

- (a) discovering and distributing materials from other sources to teachers,
- (b) assisting teachers with the development of materials for new programs and,
- (c) consulting with others on the production of new materials. These activities should encompass professional education developments and technical agriculture developments in agriculture. As examples: In the 1970-2000 period this will lead to the development of many programs in vocational agriculture at the high school and post high school levels that are much more highly specialized than at present. It may also lead to the development of programs to help develop concepts of the "world of work" in agriculture at the elementary level and to assist students in making more intelligent career choices at the junior high school and senior high school levels.*

Vocational Agriculture faculty members responsible for instructional materials must maintain very close liason not only with guidance and curriculum specialists in education, but also with faculty members in the College of Agriculture and with agricultural business and industry representatives. This lesson will assist the vocational agriculture faculty members to prepare, select, and distribute appropriate up-to-date materials for use by teachers and their students.

2. Coordinating the Instructional Materials and In-service Teacher Education Programs

The machinery for coordinating the preparation of instructional materials and the in-service training program, to implement their use, should be established. When in-service programs are planned and conducted independently, the implementation of the use of new instructional materials is likely to be by-passed. By the same token, those responsible for determining what instructional materials are to be prepared, must be well informed on the needs of teachers in service, so that the materials will be of optimum value.

* Vocational Education, The Bridge Between Man and His Work. Publication 1. Highlights and Recommendations from the General Report of the Advisory Council on Vocational Education, 1968 U. S. Office of Health, Education and Welfare. Washington, D.C.:U.S.Government Printing Office, 1968, pp.38-39.

3. Staffing the Instructional Materials Program

The problem of staffing the instructional materials program is a controversial one, primarily because the need is so great. The 1968-69 staffing arrangement was inadequate so far as needs are concerned. However, it is perhaps adequate for stimulating teachers to move into programs of vocational agriculture which will more adequately meet the needs in local communities.

The experiences of the academic years 1967-68 and 1968-69 emphasize the value of providing more nearly adequate clerical help and opportunity to process materials for those assigned to preparation of instructional materials. During these two years the author (who has been responsible for preparation of instructional materials in vocational agriculture since 1953) was allowed more clerical assistance and greater opportunity to process the materials than had been allowed previously. The records will show that production of instructional materials more than doubled as compared with earlier years.

It is recommended that administrators in the college of education and in the university continue to facilitate the production of instructional materials in vocational agriculture by providing adequate clerical help in the preparation of manuscripts and by encouraging the instructional materials specialist to move materials through processing and distribution as rapidly as possible within the limits of quality requirements worthy of the institution.

C. Interstate Relationships

Approximately in 1953 the 12 state, North Central Regional Conference for Vocational Agriculture, formally recognized and approved the organization of an Instructional Materials section. One of the purposes was to provide a means for informing faculty in the respective states about their respective instructional materials programs. This organization has helped avoid duplication of effort and has encouraged the distribution of appropriate material across state lines. Checks with technical agricultural specialists in the respective states have shown that some materials are appropriate throughout the region.

Staff members responsible for instructional materials in vocational agriculture at MSU should participate in the program of this group and make contributions to it.

VII. The Research Program

Research is one of the essential functions of any lasting program of vocational education. In terms of the teacher education aspects of the total vocational education program, research takes two important directions. First, research regarding any part of the instructional program, at any level, will be reflected in the teacher education program. The research may reveal the need:

- (1) for modification of teacher education programs
- (2) for new kinds of instructional materials
- (3) for changes in the in-service program
- (4) for changes in graduate programs
- (5) for changes in evaluation procedures
- (6) and many others

Second, research dealing directly with teacher education may reveal the desirability for change in procedures, or content, or other aspects of such programs.

Currently (1968-70) much research is being done that will affect the teacher education programs during the next thirty years. For much of this research, it is too early to predict precisely what changes will be needed. Some of the directions of change are evident. These include, (1) the need to train more specifically for a great variety of agricultural occupations. (2) the need for teacher education in vocational agriculture to prepare teachers to conduct individualized and small group instruction, (3) the need for teachers to make use of computerized instructional program, (4) the need to prepare teachers to make use of such devices as telelectures, video tapes furnished by an instructional materials service, and many others. No doubt new developments will cause these to become obsolete within the next thirty years and other devices will be developed to replace them, thus requiring new changes in the teacher education program.

A. The Research Program in Vocational Agriculture

The staff in agricultural education should accept responsibility for

research activities that will contribute to the modification and development of an on-going program of agricultural education. To accomplish this it is recommended that the staff in agricultural education (those assigned for research) undertake to carry out research projects that collectively will make a significant contribution to a comprehensive, long-time study of agricultural education. A suggestion made many years ago by Mr. William Hawley will serve to illustrate. He said, "Why not undertake to become more knowledgeable than anyone else in the nation about occupations in agriculture?" If such a challenge were accepted by the teacher education faculty for agricultural education, they would not only have a endless source of research projects, but their findings would chart the course for teacher education programs for many years in the future.

B. Short-Term Research Projects

In addition to the above suggestions for comprehensive-long-time research programs, it is often necessary to undertake short range projects to help arrive at answers to specific problems. While staff members must constantly avoid operating "crash programs" designed to meet immediate crises or to "put out fires," nevertheless such situations do occur and staff members need to be ready to perform the research necessary to provide a basis for making decisions as efficiently and accurately as possible.

C. Programs for Follow-up and Evaluation of Major Activities

Many faculty members in education, and elsewhere, could make very significant contributions to programs of vocational education, if they would keep complete records of their students and former students. An accumulation of such records would provide much of the data needed to determine effectiveness of certain programs. For example, such records are currently needed to determine effectiveness of the College of Education procedures for conducting its teacher education program in vocational agriculture as compared with earlier procedures. Also, such records will be essential to compare effectiveness of present procedures as compared with those suggested in this paper.

There is little doubt that many changes will be made in methods and procedures in teacher education in the future. Adequate records of present program and procedures, together with a record of the performance of graduates will be essential for valid evaluation.

VIII - The Placement and Follow-Up Program

While Michigan State University operates a placement service, which should continue to function, staff members in vocational agriculture teacher education must continue to accept some responsibility for placement and, more importantly, for follow-up of their graduates.

At the Bachelors Degree level the current program of enrolling first and second year teachers in courses, and of visiting these enrollees and their supervisors in their respective schools, is an effective means of follow-up. It offers a more or less adequate basis for evaluating the undergraduate program of teacher education.

Since students can become certified to teach vocational agriculture by meeting the professional requirements and by majoring in specific departments in the College of Agriculture, staff members will need to accept more responsibility than formerly for identifying the aspects of agriculture the individual is qualified to teach. For example, a young man with a background in farming, with beef as a major enterprise, and a major in Animal Husbandry, would not be a promising candidate for a school where floriculture is the dominant agricultural program. While it may be agreed that the transcript and credentials of the placement office will include this information, staff members will still need to accept responsibility to see that the information is, in fact, available to employing agencies.

At the present time the staff in agricultural education is deeply involved in the placement of those who complete the doctorate. Since, vocational educators throughout the nation are a close-knit group, communication among them is facilitated. As a result staff members will continue to give a great deal of personal assistance in recommending candidates for positions and for informing candidates of positions to be filled.

In the same way, informal follow-up of doctoral graduates is accomplished. In addition, from time to time doctoral students in agricultural education have been asked to respond to surveys to determine what modifications should be made in the program. These activities should be continued on a more systematic basis, in line with the suggestions under Research, pages 71-72.

IX. Staff Contributions to the National and International Educational Programs

Excellent programs in any field of education have a way of coming to the attention of others. This is no less true for vocational agricultural education than for others. However, excellence also carries with it a responsibility to work with others in conferences, as visiting professors, as writers, as research consultants, and as participants in professional organizations.

Michigan State has for many years had a reputation for excellence in its program of vocational agricultural education. As the institution continues to maintain such a reputation, the faculty members must be given opportunity to discharge their responsibilities by continuing to participate in out-of-state, regional and national and international activities for the benefit of the total program of education.

X. Allocation of State and Federal Teacher Education Funds

Michigan State University (formerly Michigan Agricultural College) was training teachers of vocational agriculture many years prior to the passage of the Smith-Hughes act which appropriated Federal money for the training of teachers of vocational agriculture.* The passage of the Smith-Hughes Act made it possible to expand the teacher education program to train larger numbers of students and teachers and to provide some additional in-service credit and non-credit programs.

In more recent years some leaders in vocational education have advocated that vocational teacher education monies be used by the training institution to provide the parts of the teacher education program that "would not normally be provided by the institution." Stated in another way vocational teacher education money would be allocated to the institution "to provide the kinds of training that are not provided by the institution for the preparation of other kinds of teachers." Examples might include such programs as: (1) the non-credit in-service teacher education program, (2) specially supervised internships for graduate students, (3) preparation and training in the use of specific instructional materials, and others.

In view of these proposals, and to facilitate implementation of the recommendations in this paper we recommend the method of allocating vocational agriculture teacher education funds as outlined in the following paragraphs.

A contract (agreement) should be developed between the State Board of Education and the proper administrative officers at Michigan State University, for the allocation and use of vocational agricultural teacher education funds. This should be a continuing contract so that staff and program can be developed without fear that it will be discontinued at the end of any current fiscal year.

The contract should include an itemized budget showing the items for which vocational agricultural teacher education money is to be used. Included should be (1) name of each staff and secretarial person, percent of time assigned and salary paid. (2) activities performed: (a) normally performed by the university (b) not normally performed by the university. (3) printing, production, and distribution of instructional materials not normally part of the university program. (4) other programs and activities not normally part of the university function.

* Public Act 347-Sixty-fourth Congress. 1917.

We have indicated that the contract should be continuing in nature. However, it is assumed that appropriate administrators and professional employees of the university staff and the State Board of Education staff would annually review the list of activities and budget items and recommend modification in terms of current needs.

XI. Joint Training Program with Cooperative Extension Service :

Several references have been made in this paper to a joint training program for cooperative extension personnel and teachers of vocational agriculture.

These are the two groups serving agriculture, whose primary function is education. While the details of purpose and the methods are somewhat different, it is recognized that maximum accomplishment will be best achieved by a close understanding and a cooperative relationship between the two groups.

To help achieve the maximum accomplishment, we recommend that steps be taken to develop a joint training program in which present and prospective teachers of vocational agriculture and extension personnel be trained in programs similar to those outlined in this paper.

It is recognized that the implementation of such a program will require many hours of planning and study by the two groups. However, the results will justify the time and effort spent in developing the program.

XII SUMMARY

Training teachers of vocational agriculture has been accepted as a function of Land Grant Universities throughout the country, although in more recent years additional state supported colleges and universities have also been delegated to train teachers of agriculture.

Since these teachers are responsible for much of the instruction in technical agriculture at the community level, it is essential that they be well informed and technically up-to-date in terms of the subject matter they teach. Thus, the teachers of vocational agriculture become essentially an arm of the College of Agriculture in the Land Grant University in terms of operation, even though administration of finances for the programs is in different agencies of government.

Legislation supporting agricultural education has responded to needs of the society by expanding the program from "training for farming" to providing for those, in or preparing for occupations "where a knowledge of agriculture" is needed. Essentially this has resulted in the development of programs for farming and for agricultural business and industry. In addition training may be offered at the secondary, post-secondary and adult levels for men and women either preparing for, or engaged in agricultural business or industry, including farming.

It is the function of teacher educators in agricultural education to assume a major role in recruiting individuals for teaching vocational agriculture. Discharge of this function requires that the staff maintain up-to-date information regarding need and opportunities for teachers and that a program for dissemination of this information be included in staff assignments. Dissemination needs to be made to guidance counselors and to students in secondary schools, to farm and agricultural business organizations and associations, and community college students and counselors. Recruits for teacher education in vocational agriculture may be secured from all these groups.

The training programs considered in this paper include, (1) the undergraduate teacher education program, (2) the Masters Degree program, (3) the Specialist Degree program (4) the Doctoral program, including both the Doctor of Education and the Doctor of Philosophy program, and (5) the non-credit in-service teacher education program. Major recommendations for changes to be accomplished in these programs during the 1970-2000 period include:

1. At the undergraduate level:

- (a) Offering all of the professional education courses in off-campus locations and in cooperation with local school districts.
- (b) Increasing the variety of "majors in agriculture eligible" for certification to teach vocational agriculture.
- (c) Establishing a cooperative program with agricultural extension for a joint training program for teachers of vocational agriculture and cooperative extension personnel.
- (d) Establishing a program for "recommending teacher certification by the state" based on competency rather than on number of credits in specified education courses.
- (e) Modifying the undergraduate program to allow flexibility in courses allowed for the "general education" requirement.

2. At the Master's Degree Level:

- (a) Using internship to a much greater degree than at present.
- (b) Offering a Masters Degree program for many different categories of candidates and for preparation of a wide variety of positions. For example, offering programs for candidates who have Bachelor of Science degrees in agriculture and who, (1) are certified, but have never taught, (2) have had teaching experience, (3) are not certified and wish to teach at the community college level, and (4) in preparation for positions as teachers or supervisors in secondary school, community college or adult education programs.
- (c) Requiring either a comprehensive paper, or a Masters thesis of all Masters Degree candidates.

3. At the Specialist Degree Level:

- (a) Limit age of credits acceptable for the Degree.
- (b) Change the comprehensive examination requirement to the preparation of a paper on an assigned topic or problem. Evaluate the candidate on his demonstration of ability to prepare a well written and well organized paper.

4. At the Doctors Degree Level:

- (a) Recognize a difference between the Doctor of Philosophy and the Doctor of Education in terms of the kind of dissertation required. Make the Doctor of Philosophy dissertation a distinctly research project and the Doctor of Education dissertation an equally sophisticated production, but based on the synthesis and application of basic research in a practical situation.
- (b) Expand the services of the College of Education to include, not only courses and special consultant help on statistical methods, but also help in organizing historical, philosophical and other types of dissertations.
- (c) Discontinue the comprehensive examination as presently (1968-69) required. Substitute a paper to be based on an individually assigned topic related to the candidates area of study. Evaluate the paper for (a) its organization, (b) the quality of writing, and (c) evidence of ability of the candidate to synthesize ideas from the literature.
- (d) Require 3-9 credits of history and/or philosophy of education of each doctoral candidate in agricultural education. Specific courses to meet the requirement should not be specified.
- (e) Make extensive use of the internship for doctoral candidates, particularly for Doctor of Education candidates.
- (f) Develop courses and/or seminars to broaden the "across the board" concepts and abilities of doctoral candidates regarding vocational education as opposed to agricultural education.

5. Non-Credit Teacher Education Program:

Develop a comprehensive program of in-service, non-credit teacher education. Assign sufficient vocational teacher education staff time to conduct in-service programs in professional education and to coordinate the technical in-service work needed by teachers.

- 6. It is recommended that the instructional materials program for vocational agriculture be reinstated much as it was in the 1950's and 1960's, and preferably as part of an instructional materials service for all vocational education.

- (a) With sufficient staff time allocated to meet the needs for instructional materials dealing with new needs and expanding areas of the program.
- (b) With staff members involved in preparation of instructional materials also assigned to a portion of the in-service program, so they can get first hand evaluation of the materials in relation to need and use by teachers.

7. It is recommended that some members of the staff in agricultural education be assigned time for research. The staff should be encouraged to identify and plan long-time research programs in agricultural education, particularly in areas related to teacher education. Also, as part of the research effort, staff members should be given opportunity to gather and compile data needed for the current operation of the teacher education program. Examples include gathering and compiling data on need for teachers of vocational agriculture, programs involving teaching "the world of work" at the elementary school level, need for instructional materials for new programs at the community college level, and the like.
8. Allocation of state and federal funds supporting teacher education in vocational agriculture should be made on the basis of a long-time continuing contract with the teacher education institution. Included in the contract, and reviewed each year, should be an itemized list of the activities which the funds are to support, together with a budget for each project to be undertaken.

These vocational teacher education funds should be used for "those activities and programs not normally a part of the university program of teacher preparation."

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